

# NOAA PROFILER NETWORK

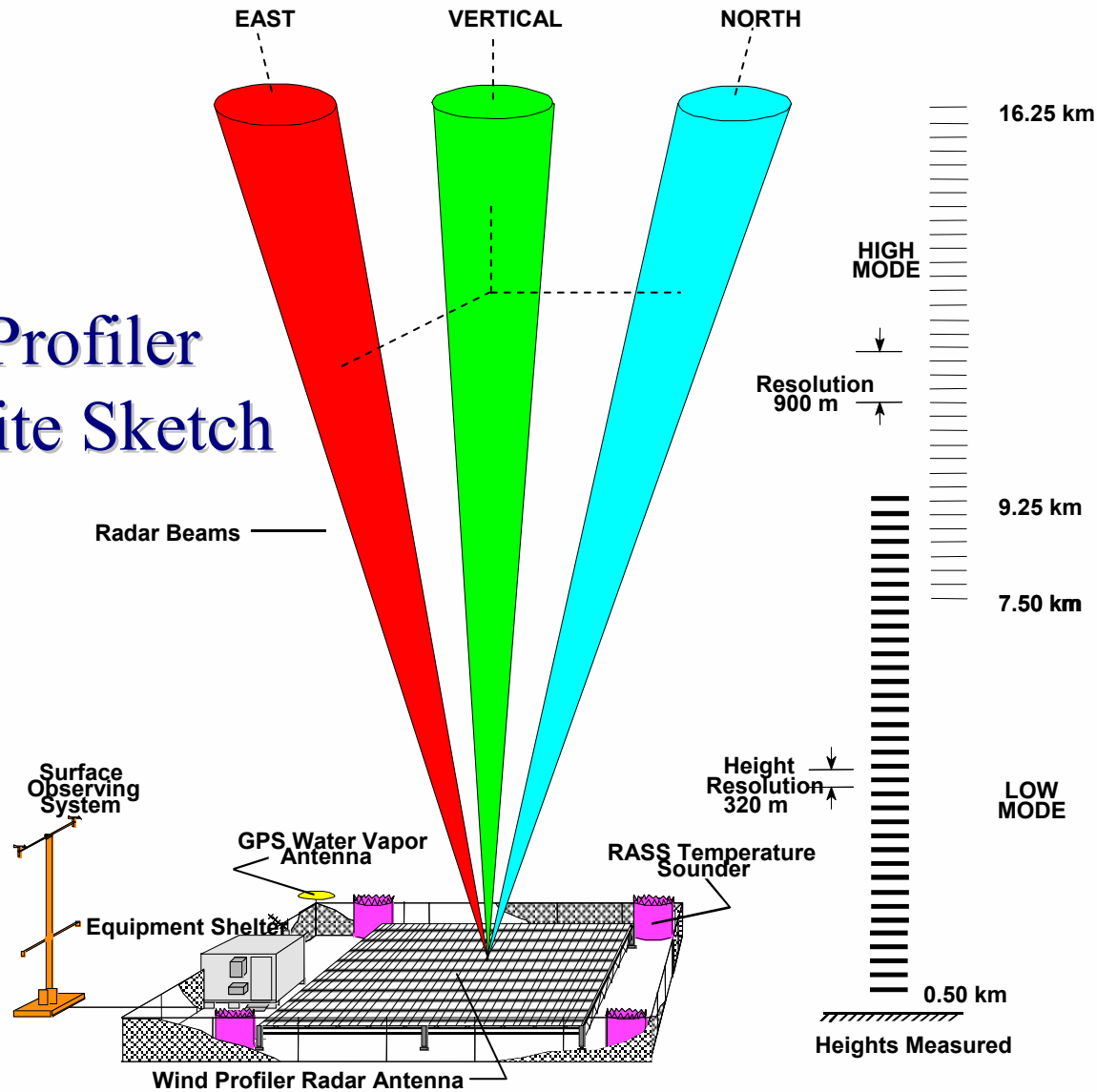
Opportunities for Technology Transfer

FSL TECHNOLOGY DAY

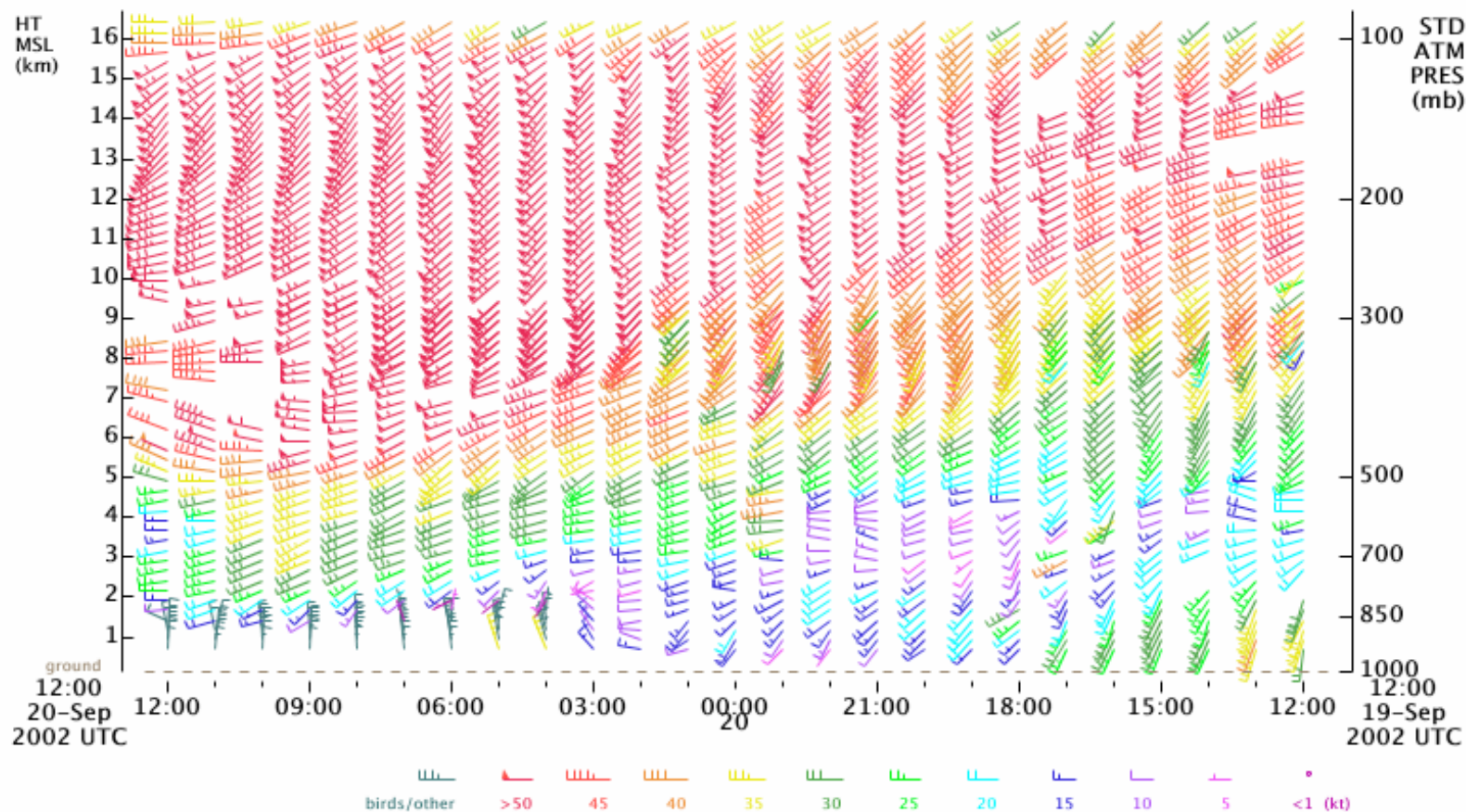
November 6, 2002



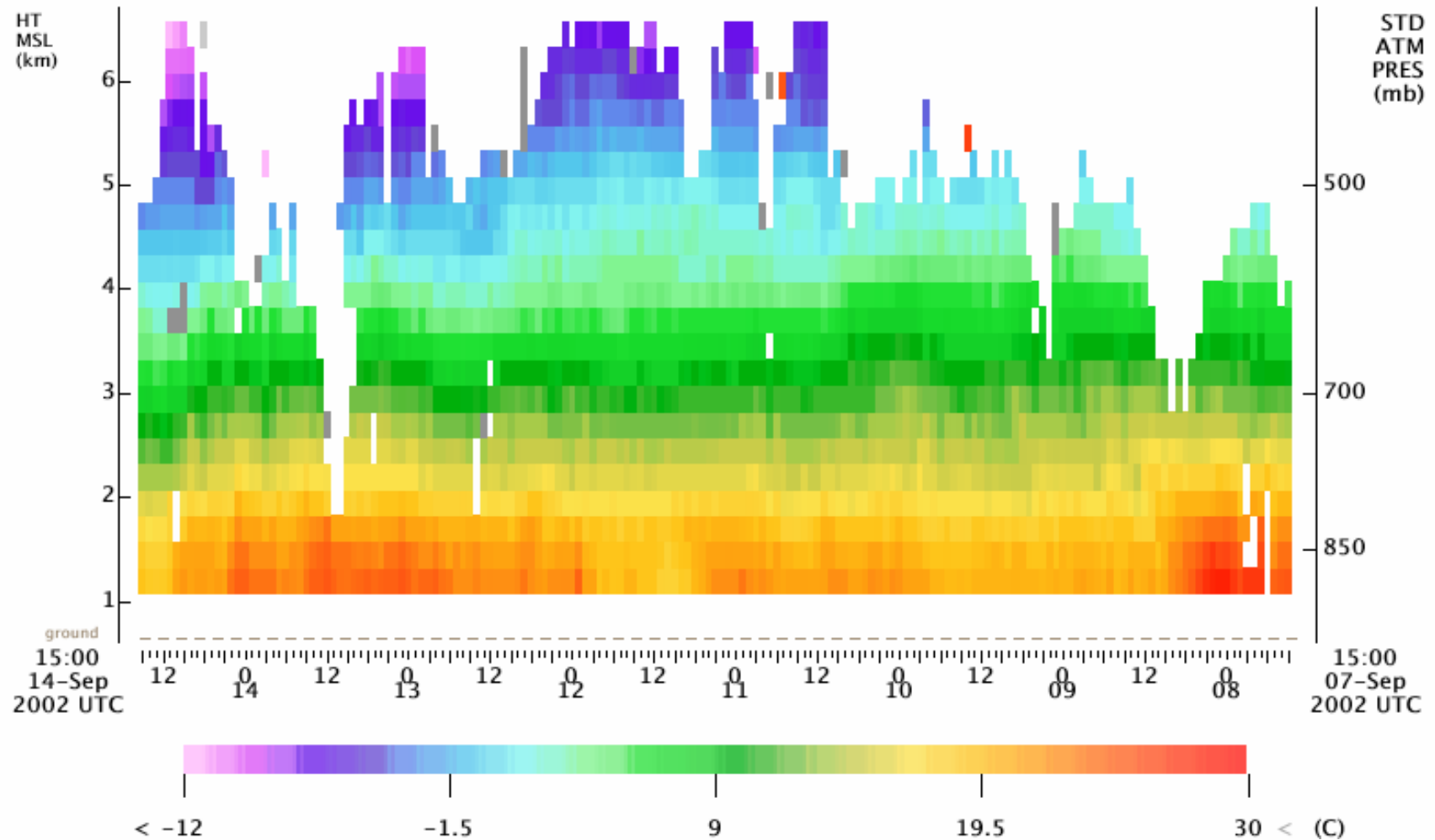
# NOAA Profiler Network Site Sketch



**LEDBETTER, TX US** Lat:30.09 Lon:-96.78 Elev:122m  
Wind Speed and Direction | Mode:310m,900m | Res:60min | QC:good+BIRD  
PrecipitationRate | Res:60min | QC:good+BIRD  
NOAA PROFILER NETWORK



VICI, OK US Lat:36.07 Lon:-99.22 Elev:648m  
Temperature | Mode:310m | Res:60min | QC:good only  
NOAA PROFILER NETWORK



The map displays the following station locations:

- 404 MHz Profiler (Blue Dots):** Medicine Bow, Merriman, Neligh, Wood Lake, Blue River, Slater, Fairbury, Lathrop, Winchester, Wilmott, Granada, Hillboro, Haviland, Conway, Neodesha, Bloomfield, Arter, Tucuman, Vici, Lamont, Haskell, DeQuasi, Okelona, White Sands, Jayton, Purcell, Winnfield, Palestine, Ledbetter.
- 449 MHz Profiler (Green Triangles):** Hatteville, Central, Talkeetna, Glenallen, Syracuse.
- Profiler Control Center (Red Star):** NWSTG.



# NOAA Profiler

## Network Site/System Characteristics

Systems: Wind and temperature profilers;  
GPS water vapor;  
Surface met sensors.

Data: High quality, hourly and sub-hourly.

Operations: Autonomous, all-weather.

Infrastructure: Shelter, power, communications  
with extra bandwidth, extra  
enclosed instrument pad.



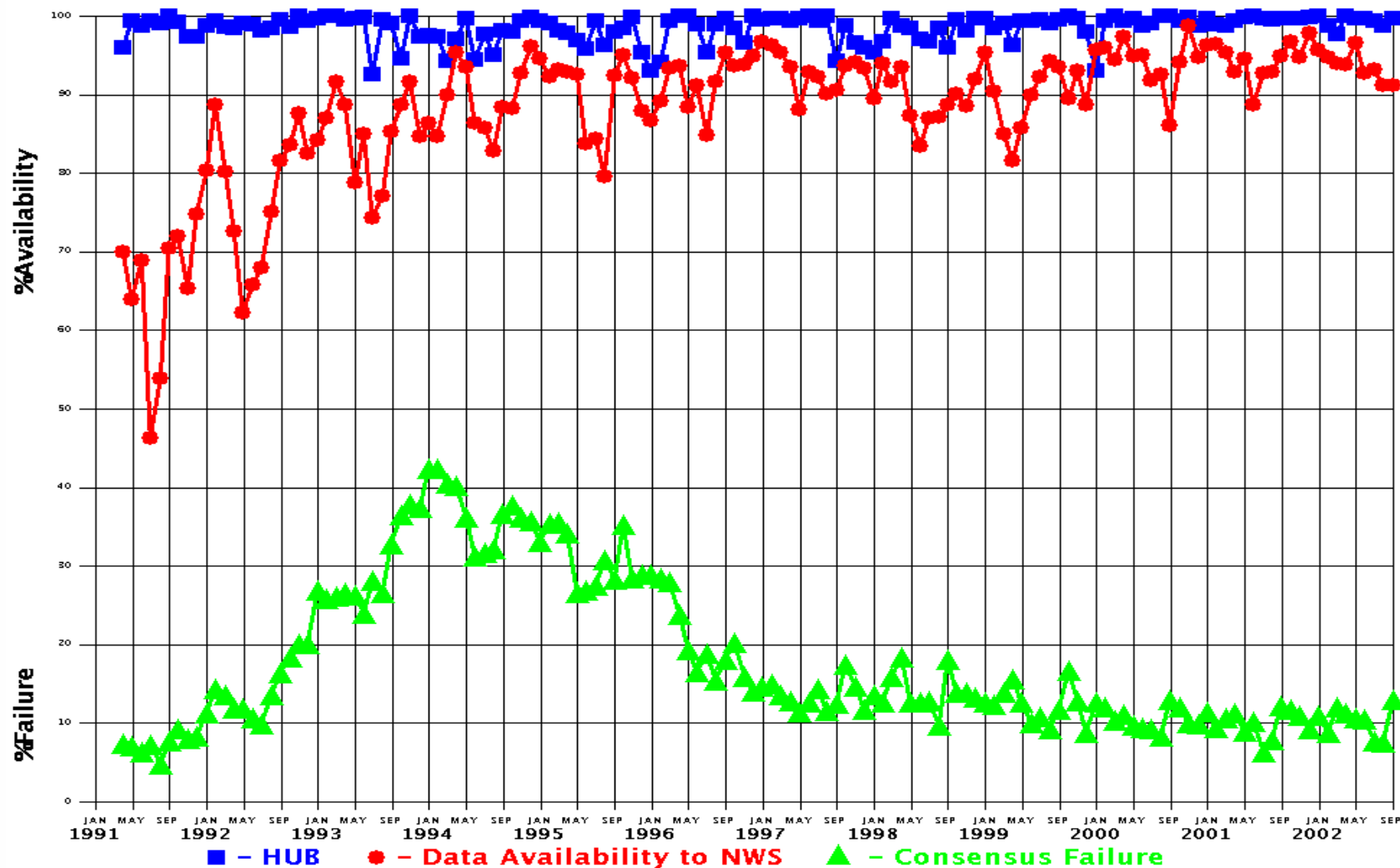
# Technical Information

- Operating Frequency – 404.37 MHz & 449 MHz
- Solid State Transmitter
- Co-axial Co-linear Phased Array Antenna
- Electronic Beam Steering
- Remote Failure Diagnostics
- Landline and GOES Communications



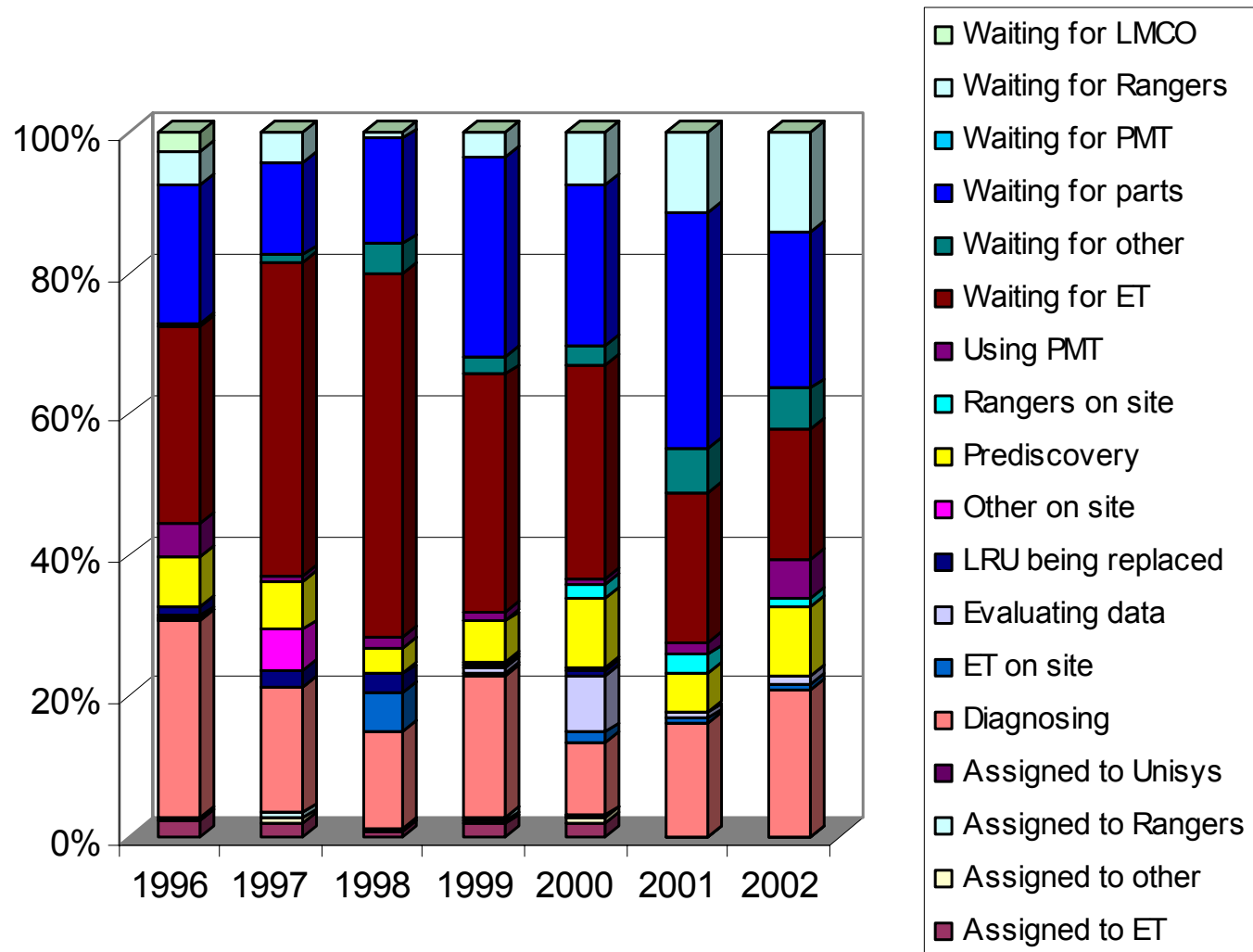
# NOAA Profiler Network

## 404 Profiler Data Availability

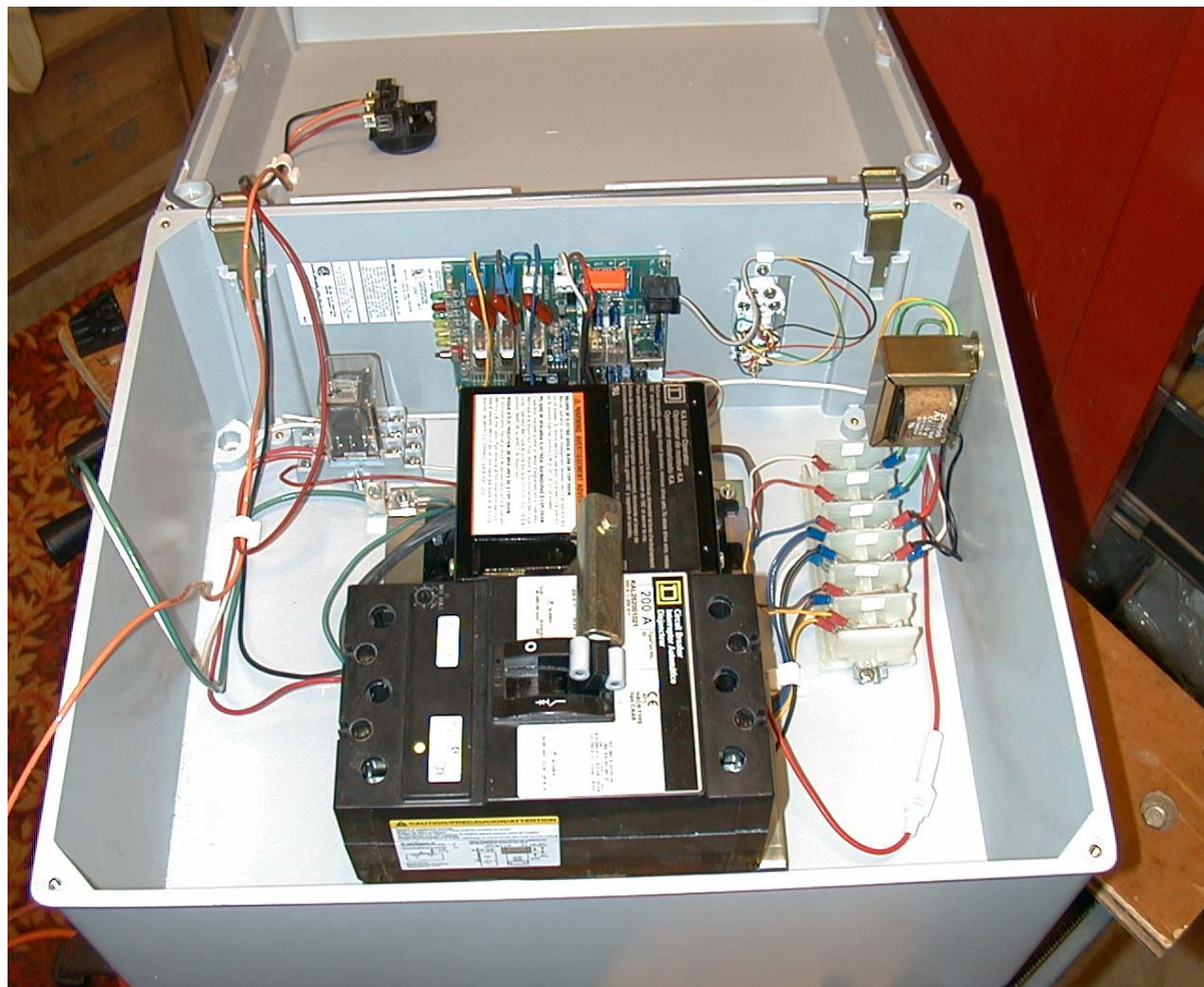




## Fault State Distribution (Both Fatal & Degraded)



# Remote Breaker Reset



## WIND PROFILER DEMONSTRATION PROGRAM

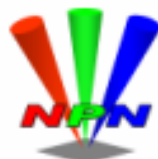
## SITE SURVEY INFORMATION, GUIDELINES, AND REQUIREMENTS

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# 1839 EIG

## ENGINEERING REPORT

WIND PROFILER

RADAR RFI SURVEYS

TEST PROCEDURES

7 JANUARY 1987

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TEST PROCEDURES

WIND PROFILER

7 JAN 87/87







# **NOAA PROFILER NETWORK**

## **GUIDE TO LRU REPLACEMENT**

### **For 404 MHz Systems**

June 1, 2002

Prepared by  
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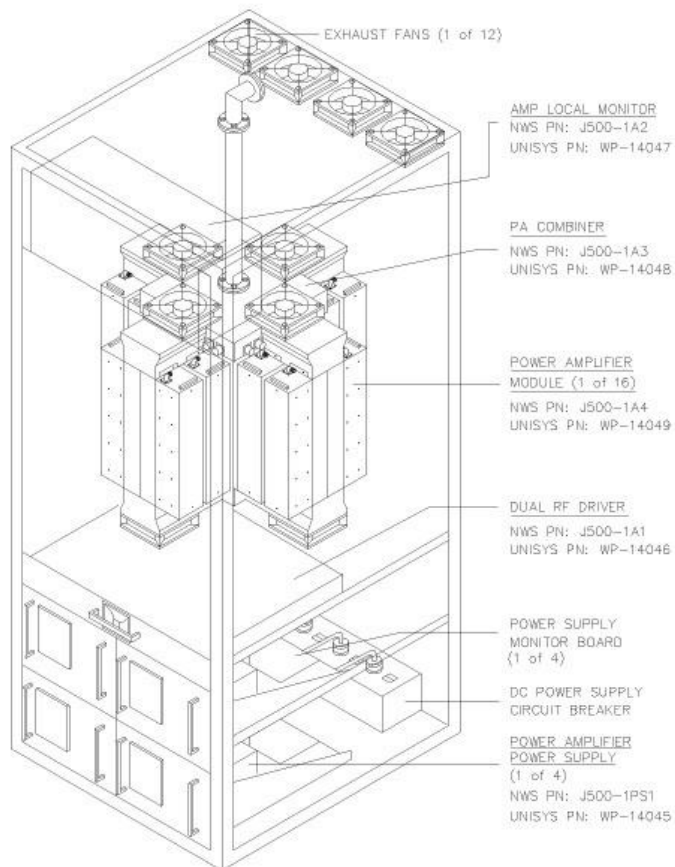
Document: 1203-SM-35  
Version 6.0



## Power Amplifier Cabinet

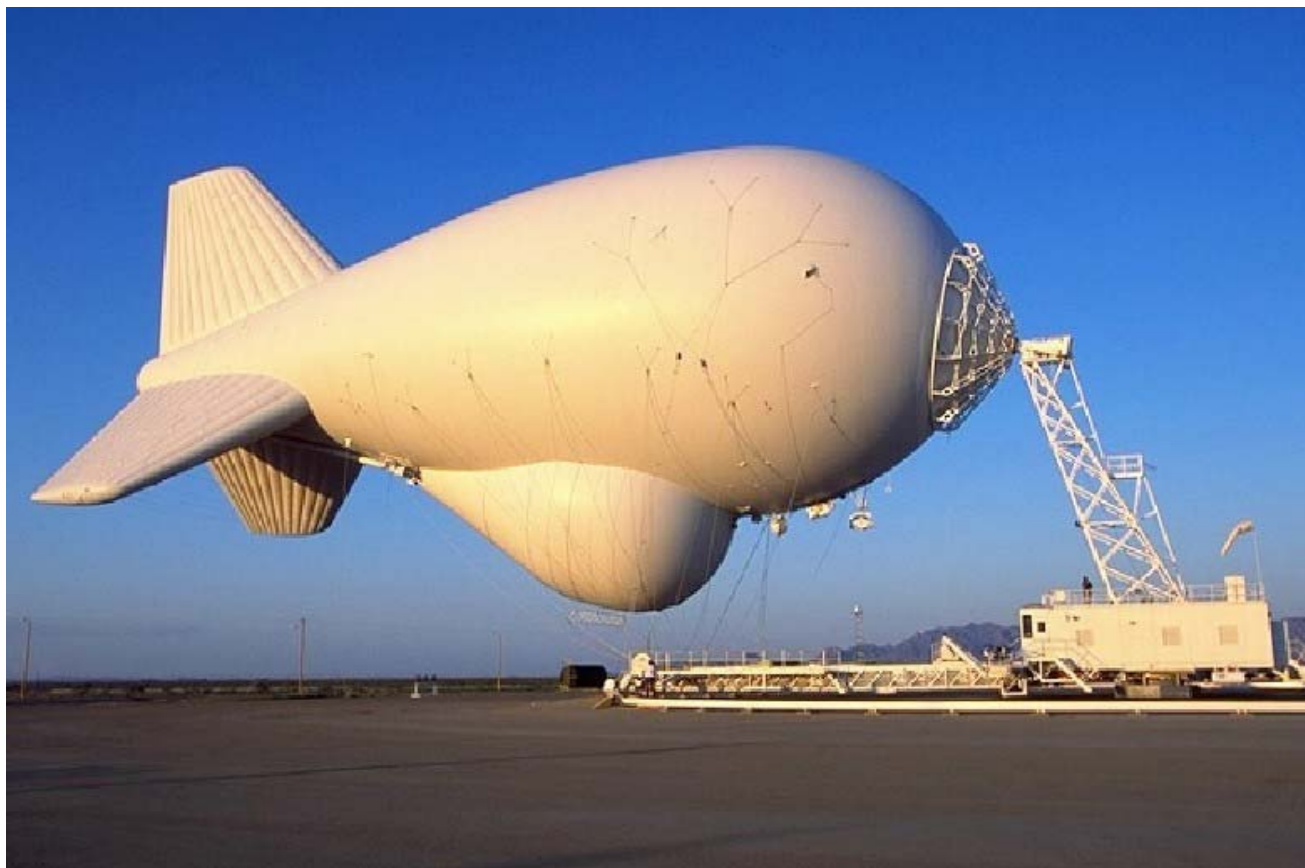
NOAA Profiler Network  
Guide to LRU Replacement

Figure 6-2 Power Amplifier Internal Component Layout



# Cooperative Agency Profilers

## The Future

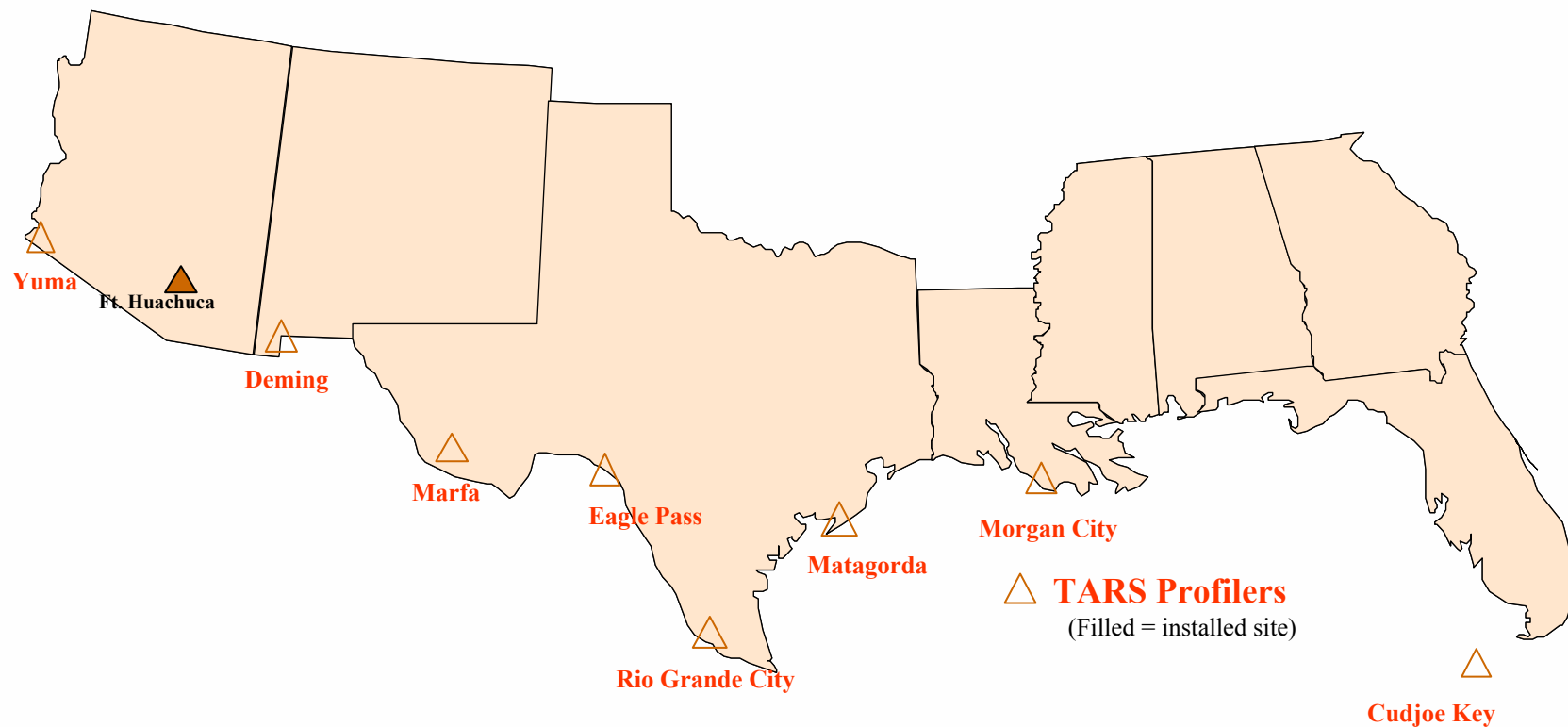


TARS Aerostat – Wind profiler needed for operations



# Cooperative Agency Profilers

## Location of TARS profilers







Map of the active continental CAP sites excluding Alaska



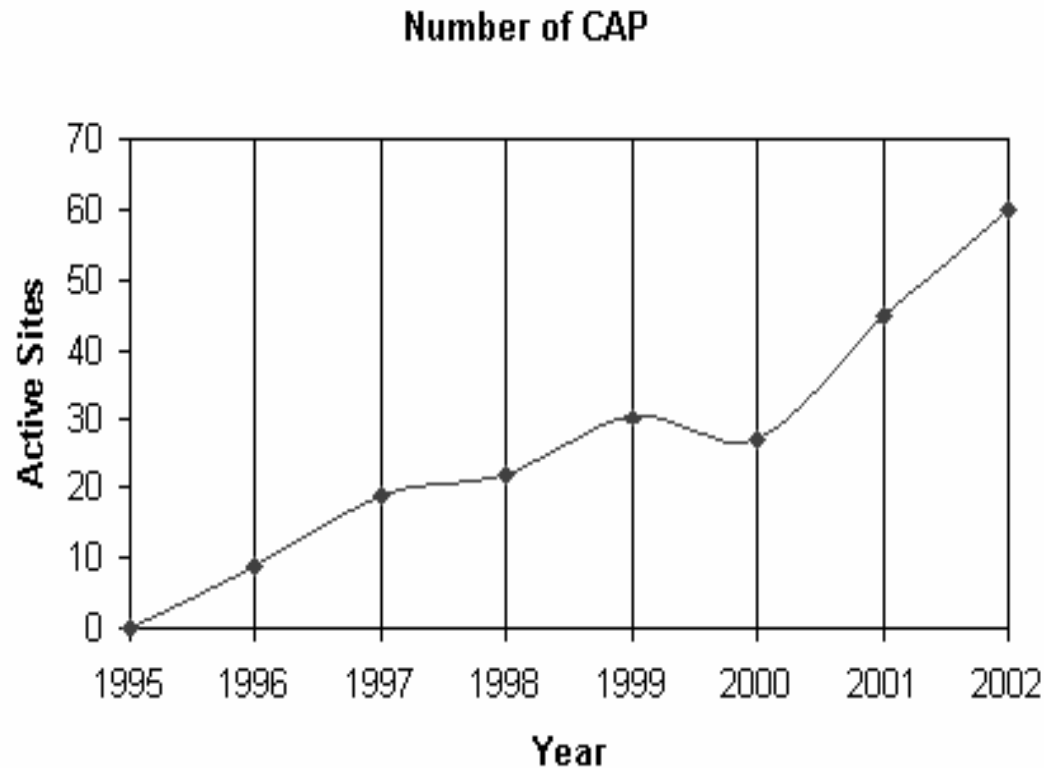
# Cooperative Agency Profilers

## Typical Characteristics

|               |         |         |         |
|---------------|---------|---------|---------|
| Frequency     | 915 MHz | 449 MHz | 50 MHz  |
| Height<br>AGL | < 3 km  | < 8 km  | < 20 km |
| Peak<br>Power | 500 W   | < 2 kW  | < 15 kW |



# Cooperative Agency Profilers



Increase in number of CAP from 1995 to 2002



# Cooperative Agency Profilers

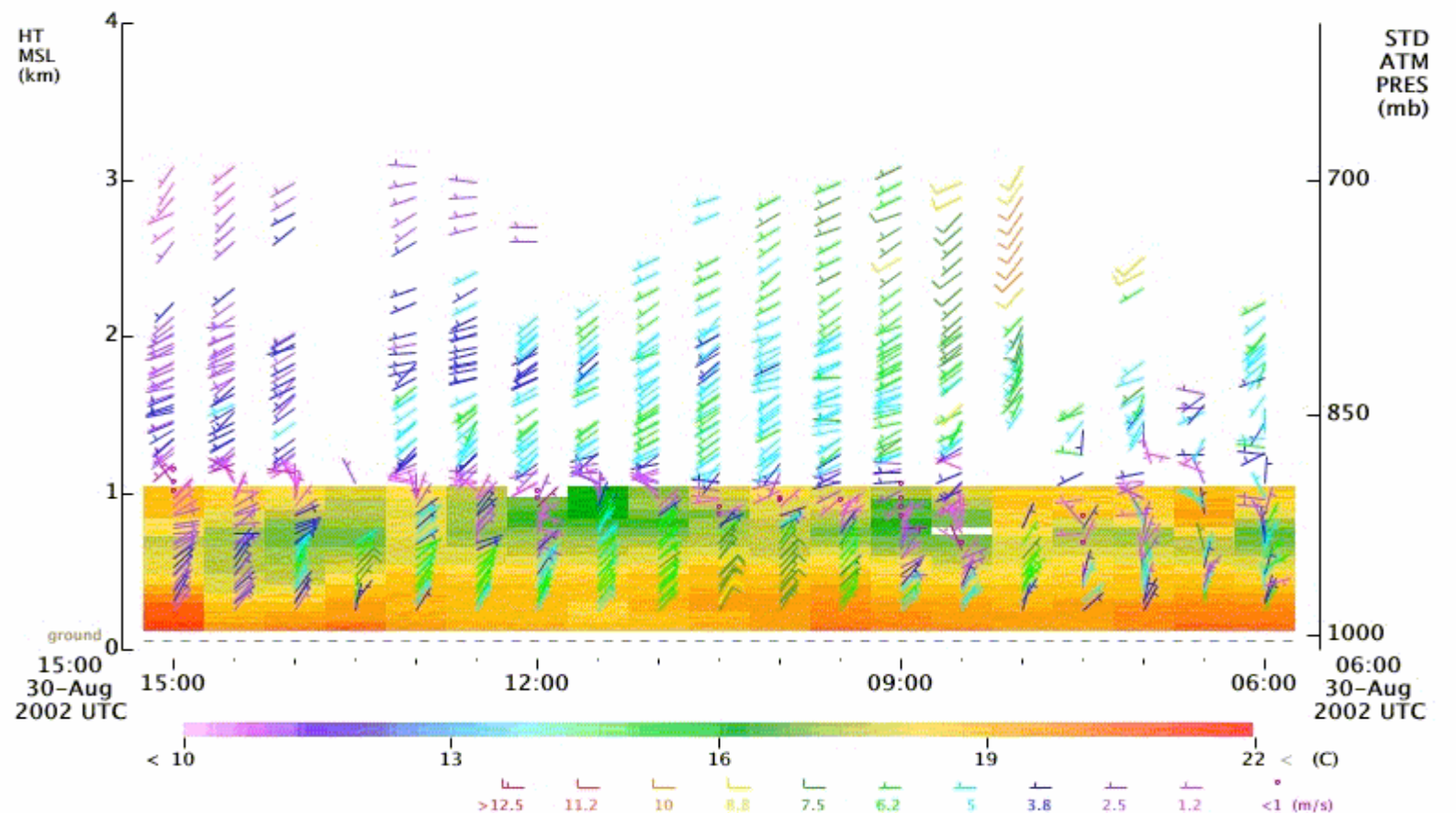
## Who Cooperates?

- NOAA Environmental Technology Laboratory - 13 profilers
- NOAA Aeronomy Laboratory - 7
- Kennedy Space Center And Cape Canaveral Air Force Station - 5
- Argonne National Laboratory ABLE/ARM Programs - 3
- NCAR Sponsored By The FAA - 3
- South Coast Air Quality Management District - 3
- White Sands Missile Range (Meteorology Branch) - 3
- Dugway Proving Ground (DPG) - 2
- Environment Canada - 2
- Department Of Interior Minerals Management Service - 2
- North Carolina Department Of Environment & Natural Resources (DENR) & Division Of Air Quality - 2
- San Diego Air Pollution Control District - 2
- San Joaquin Valley APCD - 2
- Texas Natural Resources Conservation Commission - 2
- Several others with one profiler





**RICHMOND VA** Lat:37.6 Lon:-77.5 Elev:61m  
Temperature | Mode:60m | Res:30min | QC:good only  
Wind Speed and Direction | Mode:105m,60m | Res:30min | QC:good only  
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY



# SUMMARY

- The NOAA Profiler Network has over 10 years of proven operations.
- The NOAA Profiler Network:
  - Provides critical weather information
  - Global impact
- The NOAA Profiler Network staff have expertise in:
  - Network operations
  - Installation, siting criteria
  - Technical and Meteorological training
  - Communications and Data acquisition
  - Logistics and Configuration Management



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